UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/808,835	03/25/2004	Joseph E. Harter JR.	DP-311983	6724

7590 01/30/2006

STEFAN V. CHMIELEWSKI
DELPHI TECHNOLOGIES, INC.
Legal Staff MC CT10C
P.O. Box 9005
Kokomo, IN 46904-9005

EXAMINER	
HANNAHER, CONSTANTINE	
ART UNIT	PAPER NUMBER
2884	

DATE MAILED: 01/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/808,835	HARTER, JOSEPH E.	
	Examiner	Art Unit	
	Constantine Hannaher	2884	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-24 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-24 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 25 March 2004 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 20040325.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claim 11 is objected to because of the following informalities: "a first thermal sensor detection" where --a first thermal detection sensor-- is meant. Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 10 and 18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

A claim which claims both an apparatus and method steps of using the apparatus is indefinite. *Ex parte Lyell*, 17 USPQ2d 1548 (Bd. Pat. App. & Inter. 1990). Claims 10 and 18 recite a method of detector operation upon installation while dependent on all the apparatus elements recited in claims 1 and 11.

Claim Rejections - 35 USC § 101

4. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 10 and 18 are rejected under 35 U.S.C. 101 because claims 10 and 18 are directed to neither a "process" nor a "machine," but rather embrace or overlap two different statutory classes of invention set forth in 35 U.S.C. 101 which is drafted so as to set forth the statutory classes of invention in the alternative only. *Ex parte Lyell*, 17 USPQ2d 1548, 1551 (Bd. Pat. App. & Inter.

1990). Claims 10 and 18 recite a method of detector operation upon installation while dependent on all the apparatus elements recited in claims 1 and 11.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Patchell (US006753766B2) in view of Galvin *et al.* (US004321594A).

With respect to independent claim 1, Patchell discloses a detector **24** for detecting thermal radiation in multiple coverage zones (Fig. **1**) comprising a support structure (column 9, lines 44-45), a first thermal detection sensor **S1** coupled to the support structure and arranged to detect thermal energy in a first coverage zone **34**, a second thermal detection sensor **S2** coupled to the support structure and arranged to detect thermal energy in a second coverage zone **34**, and an optical lens **48**, **50** coupled to the support structure (Fig. **4A**) and arranged to direct thermal energy from the first coverage zone to the first detection sensor and to direct thermal energy from the second coverage zone to the second thermal detection sensor. Without further definition on the part of the applicant, the use of "an" does not prohibit multiple lenses. Nevertheless, while Patchell is explicit that the two sensors **S1** and **S2** may be housed in a single support structure, the disclosure does not state unequivocally that a single "optical lens" performs the two acts of direction from zones **34** to the two sensors. Galvin *et al.* shows (Fig. **6**) that the use of an optical lens **32** arranged to direct thermal energy from a first coverage zone to a first thermal detection sensor **34** and arranged to direct

thermal energy from a second coverage zone to a second thermal detection sensor **36** has long been known. In view of the single support structure and the problems Patchell identifies when the sensors have different temperatures at column 15, lines 28-41, it would have been obvious to one of ordinary skill in the art at the time the invention was made to specify that the lens **48, 50** had a sufficient extent such that the direction of thermal energy from the two zones to the two sensors (respectively) occurred through a single optical lens. A compact arrangement in which the sensors see an optical lens of similar temperature in the respective field of view would result.

With respect to dependent claim 2, the first and second thermal detection sensors in the apparatus of Patchell comprise an infrared sensor (column 5, lines 21-30).

With respect to dependent claim 3, the infrared sensor in the apparatus of Patchell comprises a thermopile sensor (column 8, lines 14-30).

With respect to dependent claim 4, the support structure in the apparatus of Patchell comprises a conductive heat sink **60** thermally coupled to the first and second thermal detection sensors (column 9, lines 2-4).

With respect to dependent claim 5, the heat sink **60** in the apparatus of Patchell is further coupled to the optical lens (through circuit board **46** and the element creating cavity **58**, Fig. **5**). Also the heat sink **60** in the apparatus of Patchell maintains the first and second thermal detection sensors at substantially the same temperature (through their proximity).

With respect to dependent claim 6, the first and second thermal detection sensors in the apparatus of Patchell are coupled to the heat sink **60** via a thermally conductive adhesive (column 8, lines 62-65).

With respect to dependent claim 7, the support structure in the apparatus of Patchell comprises a chamber **58** having interior walls extending from each of the first and second thermal detection sensors to the optical lens (Fig. **5**).

With respect to dependent claim 8, the interior walls of the chamber **58** in the apparatus of Patchell function to keep unwanted radiation from the sides from impinging on the detector (column 8, lines 32-38). In view of the desire to keep unwanted radiation from impinging on the detector, it would have been obvious to one of ordinary skill in the art at the time the invention was made to specify that the interior walls comprised an infrared absorbing material such that unwanted radiation (including, perhaps, that coming through the portions of the optical lens **48, 50** with no optical power and thus not from the coverage zone) did not reach the detector.

With respect to dependent claim 9, the detector in the apparatus of Patchell is located on a vehicle **12**.

With respect to dependent claim 10, the detector in the apparatus of Patchell is operated in such a manner that it detects one or more objects **20** in a blind spot region **36** of the vehicle **12**.

With respect to independent claim 11, Patchell discloses a detector **24** for detecting thermal radiation in multiple coverage zones (Fig. **1**) comprising a support structure (column 9, lines 44-45), a first thermal detection sensor **S1** coupled to the support structure and arranged to detect thermal energy in a first coverage zone **34**, a second thermal detection sensor **S2** coupled to the support structure and arranged to detect thermal energy in a second coverage zone **34**, and an optical lens **48, 50** coupled to the support structure (Fig. **4A**) and arranged to direct thermal energy from the first coverage zone to the first detection sensor and to direct thermal energy from the second coverage zone to the second thermal detection sensor. The support structure in the apparatus of Patchell comprises a conductive heat sink **60** (column 9, lines 2-4). Without further definition on the part of

the applicant, the use of "an" does not prohibit multiple lenses. Nevertheless, while Patchell is explicit that the two sensors **S1** and **S2** may be housed in a single support structure, the disclosure does not state unequivocally that a single "optical lens" performs the two acts of direction from zones **34** to the two sensors. Galvin *et al.* shows (Fig. **6**) that the use of an optical lens **32** arranged to direct thermal energy from a first coverage zone to a first thermal detection sensor **34** and arranged to direct thermal energy from a second coverage zone to a second thermal detection sensor **36** has long been known. In view of the single support structure and the problems Patchell identifies when the sensors have different temperatures at column 15, lines 28-41, it would have been obvious to one of ordinary skill in the art at the time the invention was made to specify that the lens **48, 50** had a sufficient extent such that the direction of thermal energy from the two zones to the two sensors (respectively) occurred through a single optical lens. A compact arrangement in which the sensors see an optical lens of similar temperature in the respective field of view would result.

With respect to dependent claim 12, the first and second thermal detection sensors in the apparatus of Patchell comprise an infrared sensor (column 5, lines 21-30).

With respect to dependent claim 13, the infrared sensor in the apparatus of Patchell comprises a thermopile sensor (column 8, lines 14-30).

With respect to dependent claim 14, the heat sink **60** in the apparatus of Patchell is further coupled to the optical lens (through circuit board **46** and the element creating cavity **58**, Fig. **5**) and to the first and second thermal detection sensors to substantially uniformly distribute heat (column 9, lines 2-4).

With respect to dependent claim 15, the first and second thermal detection sensors in the apparatus of Patchell are coupled to the heat sink **60** via a thermally conductive adhesive (column 8, lines 62-65).

With respect to dependent claim 16, the support structure in the apparatus of Patchell comprises interior walls extending from each of the first and second thermal detection sensors to the optical lens (Fig. **5**) and defining a chamber **58**. The interior walls of the chamber **58** in the apparatus of Patchell function to keep unwanted radiation from the sides from impinging on the detector (column 8, lines 32-38). In view of the desire to keep unwanted radiation from impinging on the detector, it would have been obvious to one of ordinary skill in the art at the time the invention was made to specify that the interior walls comprised an infrared absorbing material such that unwanted radiation (including, perhaps, that coming through the portions of the optical lens **48**, **50** with no optical power and thus not from the coverage zone) did not reach the detector.

With respect to dependent claim 17, the detector in the apparatus of Patchell is located on a vehicle **12**.

With respect to dependent claim 18, the detector in the apparatus of Patchell is operated in such a manner that it detects one or more objects **20** in a blind spot region **36** of the vehicle **12**.

With respect to independent claim 19, Patchell suggests a method of detecting thermal radiation in multiple coverage zones (Fig. **1**) corresponding to the disclosed detector **24** which would comprise the steps of providing a thermal detector having first and second thermal detection sensors **S1**, **S2** and an optical lens **48**, **50** (Fig. **4A**) for directing thermal energy from first and second coverage zones **34** to the first and second thermal detection sensors, detecting a first temperature in the first coverage zone **34** with the first thermal detection sensor **S1**, wherein thermal energy passes through the optical lens to the first thermal detection sensor, and detecting a second temperature in the second coverage zone **34** with the second thermal detection sensor **S2**, wherein thermal energy passes through the optical lens to the second thermal detection sensor. Without further definition on the part of the applicant, the use of "an" does not prohibit multiple lenses. Nevertheless, while

Patchell is explicit that the two sensors **S1** and **S2** may be housed in a single support structure, the disclosure does not state unequivocally that a single "optical lens" performs the two acts of passage from zones **34** to the two sensors. Galvin *et al.* shows (Fig. **6**) that the use of an optical lens **32** arranged to pass thermal energy from a first coverage zone to a first thermal detection sensor **34** and arranged to pass thermal energy from a second coverage zone to a second thermal detection sensor **36** has long been known. In view of the single support structure and the problems Patchell identifies when the sensors have different temperatures at column 15, lines 28-41, it would have been obvious to one of ordinary skill in the art at the time the invention was made to specify that the lens **48, 50** had a sufficient extent such that the passage of thermal energy from the two zones to the two sensors (respectively) occurred through a single optical lens. A compact arrangement in which the sensors see an optical lens of similar temperature in the respective field of view would result.

With respect to dependent claim 20, the method of Patchell further comprises the steps of processing the first and second temperatures to determine the presence of a thermal emitting object (column 13, lines 48-50).

With respect to dependent claim 21, the method of Patchell further comprises the step of substantially uniformly distributing heat through the detector with a heat sink **60** (column 9, lines 2-4).

With respect to dependent claim 22, the method of Patchell further comprises the step of keeping unwanted radiation from the sides from impinging on the detector (column 8, lines 31-38). It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide an infrared absorbing material such that unwanted radiation (including, perhaps, that coming through the portions of the optical lens **48, 50** with no optical power and thus not from the coverage zone) did not reach the detector.

With respect to dependent claim 23, the first and second coverage zones **34** in the method of Patchell are in a region **36** relative to a host vehicle **12**.

With respect to dependent claim 24, the method of Patchell further comprises the step of detecting one or more objects **20** in a blind spot region **36** of the vehicle **12**.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Asano *et al.* (US 20010045520A1) confirms that the use of a single lens **5** to direct radiation from multiple coverage zones **9, 10, 11** to respective thermopile thermal detection sensors **2, 3, 4** remains routine.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Constantine Hannaher whose telephone number is (571) 272-2437. The examiner can normally be reached on Monday-Friday with flexible hours.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David P. Porta can be reached on 50. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov/. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ch

Constantine Hannaher
Primary Examiner